Developments of Economic Analyses for California Statewide Water Quality Plans for the State Water Resources Control Board
BPA
CONTRACT
TASK ORDER NO:

TITLE: Development of Economic Analyses for California Statewide Water Quality Plans.

TASK ORDER PROJECT OFFICER (TOPO):
Matt Mitchell

ALTERNATE TASK ORDER PROJECT OFFICER (Alt-TOPO):
Suesan Saucerman

PERIOD OF PERFORMANCE: 11/28/11 – 6/30/14

1. DESCRIPTION: The Clean Water Act (CWA) directs States, with oversight by the U.S. Environmental Protection Agency (US EPA) to adopt water quality standards to protect the public health and welfare, enhance the quality of water, and serve the purposes of the act. State standards must include (1) designated uses for all water bodies within their jurisdictions, (2) water quality criteria (referred to as objectives under California law) sufficient to protect the most sensitive of the uses, and (3) an antidegradation policy. States are also required to review their standards once every three years and, as appropriate, modify and adopt standards. The results of this triennial review must be submitted to US EPA and US EPA must approve or disapprove any new or revised standards. Section 303(c) of the CWA directs US EPA to promulgate standards where US EPA has determined that a new or revised standard is not consistent with the requirements of the CWA, or where necessary to meet the requirements of the CWA.

Through the triennial review process, in roundtable discussions and in discussions with US EPA Region 9 staff, it was determined that several standards need to be modified and/or adopted in California. The State Water Resources Control Board (State Board) is taking the approach that adopting statewide standards is an efficient use of limited resources and is presently in the process of developing water quality standards for the following pollutants:

1. Development of Methylmercury Fish Tissue Objectives and Implementation Policy
2. Update Economic Analysis for Statewide Toxicity Policy
3. Ocean Plan Amendments
    a. Model Monitoring Amendment
    b. Desalination Facilities and Brine Disposal
    c. Statewide Shellfish Water Quality Standards

The following are individual descriptions of each of the above listed projects:

1. Development of Methylmercury Fish Tissue Objectives and Implementation Policy and TMDL for Mercury in Reservoirs

The State Water Board is considering adopting a statewide policy for methylmercury that would apply to inland waters, enclosed bays, and estuaries in the State. Based on the US EPA's revised methylmercury (MeHg) fish tissue-based criteria guidance, elements of the proposed policy may include a methylmercury fish tissue objective and implementation procedures related to the Water Board's regulatory program. As a parallel project the state is developing a statewide reservoir TMDL and program of implementation that is intended to address lakes currently listed for mercury and hopefully will be able to contain implementation methods that would address any additional lakes that are listed for Mercury in fish tissue in the future. The TMDL will use the results from the Fish Tissue objectives project to inform the target and load setting process.

Timeline: Both projects are currently underway and we anticipate adoption of the objectives in approximately 18 months and the TMDL in 24 months.

2. Toxicity Policy – Update of Draft Economics Policy

The State Water Board has developed a draft policy for Toxicity Assessment and Control. A draft economics analysis was prepared using an early draft of the policy before the final US EPA Statistical methods (the "Test of Significant Toxicity") was released. Due to changes in the draft policy a revision to the economics analysis is needed. Updates should include the cost to Storm Water, Channelized dischargers as well as for POTWs. Factors to consider would be costs for routine monitoring as defined in the draft Policy (including courier costs as appropriate), costs for accelerated monitoring and a range of cost for TRE/TIE analyses.

3. Ocean Plan Amendments

a. Desalination Facilities and Brine Disposal

Currently, there is no Ocean Plan objective that applies specifically to brine waste discharges from desalination plants or groundwater desalination facilities. Untreated brine waste discharges into the ocean have different physical and chemical properties than either wastewater treatment plant freshwater effluent or brine waste-freshwater mixtures. Brine wastes discharged into the ocean may form a dense plume that tends to settle to the ocean floor prior to eventual mixing with ocean water. The resulting effect of exposing benthic marine life to a dense, highly saline plume is not well understood, but staff is concerned about potential harmful effects.

Average ocean salinity worldwide is about 35 parts per thousand, or grams per kilogram (g/kg). The coastal marine waters of California generally have lower salinity than open ocean waters, due to runoff. 33.5 g/kg may be used as approximate ocean salinity for California near coastal marine waters.

Preliminary studies on the effect of increased salinity to marine species were conducted by the SCCWRP in 1992. Percent normal development of purple sea urchin (*Strongylocentrotus purpuratus*) embryos were reduced 56 to 75 percent in salinities of 36.5 g/kg.

The Ocean Unit is preliminarily proposing to establish a narrative water quality objective where salinity should not exceed a certain percentage of natural background. Implementation of the objective would be via dilution (for example, through mechanically forced diffusion into the water column or by co-mingling brine with low wastewater plant discharges). Dilution would be determined by modeling or an empirical study.

The State Board recently adopted a policy (May 2010) to greatly reduce entrainment and impingement of marine life by once-through cooled power plants. The Ocean Plan amendment for desalination facilities would require that intakes for desalination plants must be controlled to prevent entrainment and impingement of marine life.

Time line – target for release of Draft SED: Fall 2011

b. Statewide Shellfish Water Quality Standards

The State Water Board, in the California Ocean Plan Triennial Review and Workplan 2005-08 (Resolution 2005-0080), directed staff to consider proposed amendments to the Ocean Plan, one which was to add a fecal coliform standard for shellfish. In April of 2010, a public meeting was held to present an approach and solicit comments on creating a consistent statewide water quality standards for areas of shellfish harvesting, including adding a fecal coliform standard to the Ocean Plan. The Ocean plan staff is meeting with stakeholders on these and related issues including a better definition of the shellfish beneficial use and how a Reference System and Antidegradation Approach might apply to recreational shellfish harvesting.

Timeline – target for release of Draft SED: Fall 2011

2. TASK – To conduct the Economic Analyses for the projects listed above a contractor will gather information as directed by the State Water Board and estimate baseline information. The baseline is defined as the costs that would accrue in the absence of the proposed new water quality objective or proposed new policy. The Contractor will estimate the baseline and incremental cost, i.e., those costs above the baseline cost, for each new or revised objective or policy, or set of objectives and policies, for the particular pollutant or policy as listed above.

The Contractor will identify the proposed issues that are most important in terms of their effect on the economics of the proposed project. Under direction of the State Water Board staff, the Contractor will compile a list of proposed reasonable alternatives for each issue identified. The

Contractor will then conduct an economic analysis relative to the baseline established above. The Contractor will work with the State Water Board staff to determine the specific scope of each economic analysis, prior to starting work on each economic analysis.

The Contractor will evaluate the attainability of the draft policies in all applicable Regions. The Contractor will identify the point and non-point source discharges that might be impacted by the amendment and the costs of compliance for each discharge type in each basin planning area. In addition, the Contractor will identify impacts of non-compliance with the recommended basin plan amendment and the costs of those impacts. If necessary, these measures should include time schedules to achieve compliance.

The contractor will look at one-time costs and annual costs (including O&M and monitoring) of each alternative, for each issue identified, relative to the baseline costs. For each cost estimated, the contractor will provide a low and a high cost estimate, so that a range of costs will be provided for each alternative.

Written reports suitable for inclusion as the economics section of the staff reports for the proposed policies shall be produced.

Deliverables due dates shall be suitable for the timelines noted for each project, i.e., the contractor shall contact the State Board staff on the timelines that each economic analysis is needed to be complete in order to fit within the schedule of each project.

3. PERFORMANCE STANDARDS AND QUALITY MEASURES:
The following standards will be used to measure performance:

1) **Quality of Outputs -** All tasks to be superior quality. The quality of outputs will be measured against similar analyses and work products already performed by EPA. These include the costs methodology, and supporting documentation and analyses for The California Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, the Great Lakes Water Quality Guidance, the California Toxics Rule, and water quality standards regulations for the States of California, Alabama, Delaware, Idaho, Kansas, and Oregon, and the U.S. Territory of Puerto Rico.

2) **Timeliness -** All tasks are to be completed on or ahead of schedule as measured against the acceptance criteria.

3) **Ingenuity and Resourcefulness -** New issues are addressed using innovative analyses. Ingenuity and resourcefulness will be measured by the ability to use innovative analyses to address new issues not previously identified in the analyses conducted for the California Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Great Lakes Water Quality Guidance, California Toxics Rule, as well as the Alabama, California, Delaware, Idaho, Kansas, and Oregon, and Puerto Rico water quality standards rulemakings.

4) **Quality Assurance -** All work is to adhere to the Quality Assurance Project Plan for the contract.

4. TRAVEL

Travel will not be needed to complete this Task Order.